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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of:	)	
	)	
Amendment of Parts 73 and 74 of the Commission's Rules to More Effectively Protect Radio Astronomy Activity on Channel 37	)	**RM-8109**
	)	**MM Docket No. 95-17**
	)	
	)	

To: Chief, Mass Media Bureau

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COMMENTS OF S&E NETWORK INC.

S&E Network Inc. ("S&E"), licensee of station WJWN-TV, Channel 38, San Sebastian, Puerto Rico, hereby submits its comments in the above-referenced proceeding.[1/] The FCC proposes to adopt rules imposing more stringent technical limits on certain UHF television stations operating on Channels 36 and 38 than on stations operating on other channels. The new limits are designed to provide greater protection to radio astronomy operations that utilize Channel 37 at 13 sites, including one at Arecibo, Puerto Rico, located about 28 miles from the antenna site of WJWN-TV. According to the rulemaking notice, the FCC seeks to create standards that do not unnecessarily burden licensed full service stations such as WJWN-TV. S&E recommends, generally, an upward adjustment in the proposed baseline predicted field strength limit and specifically urges that the FCC clarify that WJWN-TV

[1/] When S&E acquired WJWN-TV in late 1994, the station had been silent for several years following hurricane damage. S&E has rebuilt the facilities and in March returned the station to the air.

may demonstrate the field strength it produces at the Arecibo site based on Tech Note 101 methodology.

Under the FCC's proposal, UHF stations operating on Channel 36 and 38 could not produce a predicted field strength above 64 dBu at the coordinates of the 13-designated radio astronomy sites. The FCC states that the licensed operation of WJWN-TV (currently authorized at less than maximum facilities) produces a predicted field strength of 67 dBu at the Arecibo site, or 3 dBu above the proposed 64 dBu limit. To moderate the adverse impact of the new, more stringent limit on WJWN-TV (the only full service TV station operating with facilities predicted to produce a field strength above the 64 dBu level, according to the rulemaking notice), the FCC would allow WJWN-TV to operate at a level 3 dBu above the new limit. To accomplish this result, it would grant a waiver to the licensee so that the station could "continue operating with its authorized facilities, but would not be allowed to increase its field strength in the direction of the affected radio astronomy site" (Notice at ¶1). Under this approach, "WJWN-TV would not be permitted to modify its facilities in such a way as to increase its predicted field strength at the Arecibo radio astronomy site" (Notice at ¶11).

S&E agrees with the FCC's proposed rejection of an approach to protect radio astronomy sites that is based on minimum distance separation requirements. However, for the reasons set forth in the attached du Triel Lundin & Rackley,

Inc. Technical Statement, if the FCC adopts a field strength limit, S&E recommends that the level be set at 72 dBu because the proposed 64 dBu standard would be 8 dBu more restrictive than the level that conforms with current regulations on full service UHF television stations.

Furthermore, S&E urges that the FCC clarify that in future applications, WJWN-TV may demonstrate whether changes in the station's facilities "increase its field strength in the direction of the affected radio astronomy site" on the basis of the Longley-Rice or similar supplemental prediction method. Absent such clarification, the FCC's discussion regarding WJWN-TV later might be interpreted in a manner that delays action on or prevents a modification in the station's facilities that would not "increase its field strength" above the existing or otherwise acceptable level taking into account the unique Puerto Rico terrain conditions but would reflect a theoretical increase if viewed only by the standard prediction method.

As explained in the Technical Statement, such an overly strict interpretation would unnecessarily prevent WJWN-TV from making signal improvements in the direction of its city of license when the change would ***not*** pose any threat to the Arecibo radio astronomy site. The Technical Statement demonstrates that reliance on the Longley-Rice or similar alternative prediction method is appropriate in this instance because the terrain between the WJWN-TV antenna site and the

Arecibo radio astronomy site departs widely from the average elevation of the 3 to 16 km sector used in the standard prediction method. It further shows that the often-utilized Longley-Rice method is used by the National Radio Astronomy Observatory in West Virginia and the Table Mountain Radio Receiving Zone research laboratories in Colorado to monitor potential signal interference. In short, requiring WJWN-TV to use only the standard prediction method would have an unnecessarily restrictive and prejudicial impact on the station without demonstrable countervailing public interest justification.

Accordingly, S&E respectfully requests that if a field standard limit for Channel 38 stations is adopted, the FCC give WJWN-TV the flexibility of using a supplemental showing to demonstrate the level of field strength the station produces at the Arecibo radio astronomy site and that the FCC consider raising the baseline benchmark to 72 dBu.

Respectfully submitted,

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March 31, 1995

TECHNICAL STATEMENT
IN SUPPORT OF COMMENTS OF
S&E NETWORK, INC.
CONCERNING MM DOCKET NO. 94-3

This Technical Statement and associated exhibit have been prepared on behalf of S$E Network, Inc. ("S&E"), licensee of WJWN-TV on channel 38 at San Sebastian, Puerto Rico in support of comments in MM Docket No. 95-17 ("Docket"). This Docket proposes additional protection of radio astronomy operations on channel 37 of the UHF television broadcasting band by TV stations operating on channels 36 and 38 by use of a field strength limit at the radio astronomy locations for channel 36 and 38 UHF TV operations. S&E agrees with the FCC that it should not use a minimum distance separation approach. It urges that a new field strength limit, if adopted, be the 72 dBu predicted field strength level for channel 36 and 38 operations at the radio astronomy sites because this is the level that conforms with current regulations on full service UHF television operations. Also, S&E urges that the FCC permit WJWN-TV to utilize the Longley-Rice prediction method to determine the field strength at the Arecibo radio astronomy site.

At paragraph 4 of the Docket, the FCC proposes to set a limit on the field strength that a channel 36 or 38 TV station could produce at radio astronomy sites. However, the FCC's proposed field strength limit of 64 dBu at the radio astronomy sites for channel 36 and 38 operations is more restrictive than the level that

conforms with current regulations on full service UHF television stations. The current FCC rules specify a minimum distance separation requirement between adjacent channel UHF television stations of 87.7 kilometers. The FCC rules permit UHF television stations to have maximum facilities consisting of a maximum visual effective radiated power (ERP) of 5000 kW and an antenna height above average terrain (HAAT) of 610 meters (2000 feet). Based on maximum UHF facilities, the calculated field strength at a distance of 87.7 kilometers is approximately 72 dBu using the FCC's standard prediction method. Therefore, any new limit should not be more restrictive than the 72 dBu predicted field strength level from channel 36 and 38 operations at the radio astronomy sites as a level that conforms with current regulations on full service UHF television operations.

Station WJWN currently operates on channel 38 at San Sebastian with a directional antenna maximum visual ERP of 85.1 kW and an antenna height above average terrain HAAT 332 meters (1090 feet). The WJWN facilities are below both the maximum permitted UHF stations (ERP 5000 kW/HAAT 610 meters, 2000 feet) as well as "typical" UHF facilities (ERP 1000-5000 kW/HAAT 350 meters, 1150 feet) as defined by the Commission.[1]

[1] See paragraph 7 of the Docket.

The Arecibo radio astronomy site[2] is located 28 miles (45 km) from the WJWN site at a bearing of 86° true. The FCC indicates the current WJWN predicted field strength is 67 dBu at the Arecibo site which exceeds the FCC's proposed 64 dBu value by 3 dB. The FCC has proposed to "waive" the current WJWN-TV facilities to allow a field strength at the current predicted 67 dBu level and would not permit facility modifications which would increase WJWN-TV's predicted field strength at the Arecibo radio astronomy site. The San Sebastian reference point is located at a bearing of approximately 84° true. Thus, the FCC proposes to prohibit WJWN from improving its facilities in the direction of its city of license because such changes, based on the FCC's standard prediction method, would theoretically increase WJWN's field strength at the radio astronomy site. This result would be unnecessary because some improvements in WJWN's facilities in the direction of its city of license, based on the unique terrain conditions of the area, would not pose a threat to the radio astronomy site. Therefore, S&E urges that the FCC permit WJWN to utilize supplemental showings to determine the field strength at the Arecibo radio astronomy site that would result from facility modifications.

The FCC calculated the WJWN field strength at the Arecibo radio astronomy site using its standard

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[2] The geographic coordinates listed in Appendix A of the Docket are Latitude 18°20'46" North, Longitude 66°45'11" West.

prediction method. This method only considers terrain between 2-10 miles (3-16 km) of the transmitter site, whereas terrain beyond 10 miles can significantly affect signal strength. The FCC has recognized the severe and rugged terrain conditions existing in Puerto Rico significantly limit actual TV coverage unique and that consideration of terrain factors will significantly reduce coverage.[3]

Figure 1, attached, is a terrain profile at 86° from the WJWN-TV transmitter site to the Arecibo radio astronomy site. The terrain was derived from the Defense Mapping Agency 3-second terrain database. Also shown on Figure 1 is the line-of-sight path from the WJWN-TV antenna center of radiation (1295 feet AMSL) towards the Arecibo radio astronomy site along with the 0.6 Fresnel zone clearance based on the WJWN visual carrier frequency of 615.25 MHz. It is apparent that the intervening terrain will result in significant attenuation of the WJWN-TV signal at the Arecibo radio astronomy site. Therefore, use of a supplemental propagation method as a more precise, real world, alternative to the FCC's standard prediction method is justified.

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[3] See Memorandum Opinion and Order which assigned the license of Station WJWN-TV, San Sebastian, WKPV(TV), Ponce and WSJN-TV, San Juan to Interstate General Properties Limited Partnership, S.E. at paragraphs 9-10 (FCC 94-223; adopted August 29, 1994, released September 14, 1994); Zaida Perez VDA. De Perez, et al., FCC 85-381, at paragraph 11 (released July 26, 1985); and Hector Nicolau, 5 FCC Rcd 6370 (1990) at paragraph 10.

Section 73.684(f) permits the use of supplemental showings in cases where the terrain departs widely from the average elevation of the 2-10 mile sector. As shown on Figure 1, the terrain from 2-10 miles is of low, decreasing elevation. The average elevation for this sector is 456 feet. However, beyond 10 miles, beginning at approximately 14 miles and continuing to the Arecibo radio astronomy site at 28 miles, the terrain rises to an elevation of more than 1180 feet and varies from 700-1180 feet. Furthermore, the average terrain elevation from 10-28 miles is 819 feet. Therefore, use of a supplemental method appears justified under Section 63.684(f) in this instance.

S&E urges that the FCC permit WJWN-TV to utilize the Longley-Rice prediction method (otherwise known as Technical Note 101) as a supplemental method to determine the field strength at the Arecibo radio astronomy site that would result from any future facility modifications.[4] The use of the Longley-Rice method has been accepted by the FCC in numerous instances as an alternative to the FCC' standard prediction method. In addition, it is utilized by the National Radio Astronomy Observatory in West Virginia and the Table Mountain Radio Receiving Zone research laboratories in Colorado to determine if radio facilities would cause harmful

[4] Rice, P. L., A. G. Longley, K. A. Norton, and A. P. Barsis, Transmission Loss Predictions for Tropospheric Communication Circuits," Technical Note 101 (Issued May 7, 1965, Revised January 1, 1967) National Bureau of Standards, Boulder, Colorado.

interference.[5] This approach would allow S&E to improve its facilities without risk to the radio astronomy site.

In conclusion, S&E supports the FCC proposal not to use a minimum distance separation requirement to protect the radio astronomy locations for channel 36 and 38 UHF TV operations. Furthermore, a 72 dBu predicted field strength level would conform with current regulations on full service UHF television operations. S&E urges that the FCC permit WJWN-TV to use the Longley-Rice prediction method to determine the field strength at the Arecibo radio astronomy site.

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[5] See Section 73.1030.

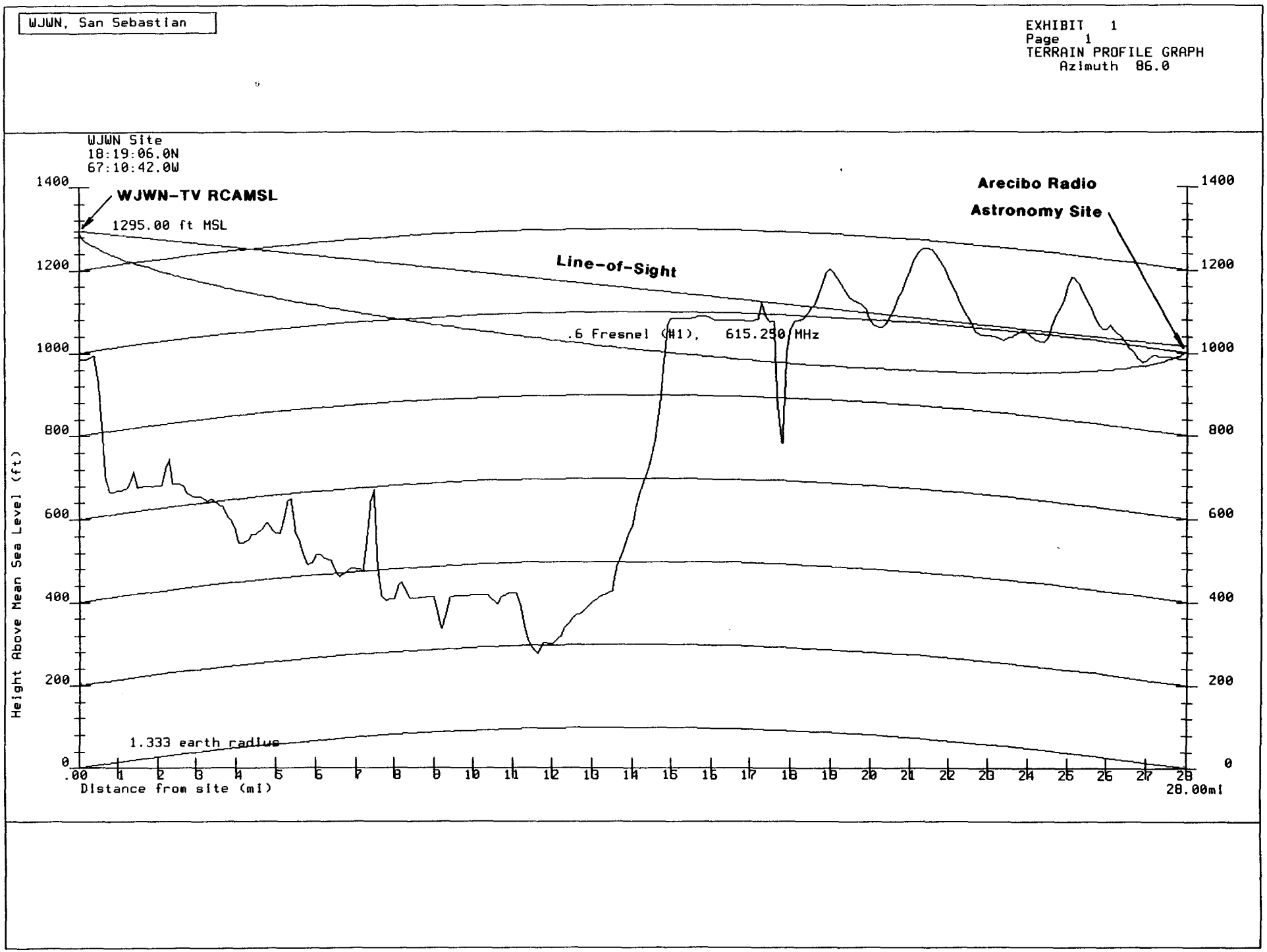
WJWN, San Sebastian
EXHIBIT 1
Page 1
TERRAIN PROFILE GRAPH
Azimuth 86.0
WJWN Site
18:19:06.0N
67:10:42.0W
WJWN-TV RCAMSL
1295.00 ft MSL
Arecibo Radio
Astronomy Site
Line-of-Sight
.6 Fresnel (#1), 615.250 MHz
1.333 earth radius
Height Above Mean Sea Level (ft)
Distance from site (mi)
28.00mi

Figure 1